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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/568,672	02/17/2006	Akihiko Nishio	L9289.06113	2716

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EXAMINER

HUYNH, NAM TRUNG

ART UNIT	PAPER NUMBER
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2617

MAIL DATE	DELIVERY MODE
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06/23/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/568,672	Applicant(s) NISHIO, AKIHIKO	
	Examiner NAM HUYNH	Art Unit 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-20 and 22-30 is/are rejected.
- 7) ☒ Claim(s) 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/17/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

This office action is in response to preliminary amendment filed on 2/17/06.

Claims 16-30 are currently pending.

Information Disclosure Statement

1. The information disclosure statement filed 2/17/06 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

Art Unit: 2617

2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
4. Claims 16, 17, 22-26, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hadad (US 7,512,409) in view of Cudak et al. (US 2005/0289256) (hereinafter Cudak).

Regarding claim 16, Hadad teaches a wireless communication apparatus (base station) comprising:

a subcarrier allocation section that allocates first data (personalized data) to a subcarrier or a subcarrier block (personalized data is allocated to a subcarrier) and allocates second data different to the first data (common data) to a preassigned subcarrier or a preassigned subcarrier block (fixed portion of the subcarrier) (column 6, lines 32-37); and

a transmission section that transmits the first data and the second data allocated to the subcarrier or the subcarrier block by the subcarrier allocation section (column 8, lines 23-28).

However, Hadad does not explicitly teach that the first data is allocated satisfying a predetermined condition to a subcarrier or a subcarrier block based on reception quality information indicating reception quality of each communication party. Cudak discloses a method and apparatus for channel quality feedback within a communication system (title) wherein a base station receives quality information from a remote station and adjusts the modulation and coding for subband (subcarriers) assignment of the remote station (paragraphs 13, 73). Cudak thus teaches the concept of taking into

Art Unit: 2617

account the reception quality of the communication party when allocating subcarriers. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Hadad to allow the base station to take into account the reception quality of the communication party, as taught by Cudak, when allocating subcarriers for the personalized data in order for the base station to choose the subcarriers having the best channel quality condition. This modification improves whole transmission efficiency by allowing the base station to identify portions of the subcarrier that provide poor receiving conditions.

Regarding claim 17, Hadad teaches the subcarrier allocation section allocates the first data (personalized data) constituted by dedicated data transmitted to each communicating party to the selected subcarrier or subcarrier block, and allocates the second data constituted by common data (common data) transmitted to a plurality of communicating parties to the preassigned subcarrier or subcarrier block (column 6, lines 32-37).

Regarding claim 22, Hadad teaches the subcarrier allocation section allocates the second data to a plurality of subcarriers or a plurality of subcarrier blocks at a predetermined frequency interval within a communication frequency band width (figure 2, item 181).

Regarding claim 23, Cudak teaches the subcarrier allocation section holds a reference table storing modulation scheme information associating reception quality information and modulation scheme, selects the modulation scheme for each subcarrier or subcarrier block using reception quality information for the communicating party, and

Art Unit: 2617

allocates the first data to the subcarriers or subcarrier block using scheduling in such a manner that the required transmission rate for each communicating party is satisfied using required transmission rate information indicating required transmission rate of each communicating party (paragraph 73; modulation and coding level is chosen for the subband based on channel quality report).

Regarding claim 24 and 25, the limitations are rejected as applied to claim 16.

Regarding claim 26, the limitations are rejected as applied to claim 17.

Regarding claim 29, the limitations are rejected as applied to claim 22.

Regarding claim 30, the limitations are rejected as applied to claim 23.

5. Claims 18-20, 27, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hadad (US 7,512,409) in view of Cudak et al. (US 2005/0289256) (hereinafter Cudak) as applied to claims 16 and 25 above, and further in view of Sudo (2006/0160498).

Regarding claim 18, in the combination of Hadad and Cudak, Cudak teaches the wireless communication apparatus further comprising a data amount determination section that determines an amount of data of transmission data (paragraph 64; data queue status), but the combination does not teach the subcarrier allocation section allocates the first data of the data amount greater than or equal to a first threshold value to the selected subcarrier or subcarrier block, and allocates the second data of the data amount less than the first threshold value to the preassigned subcarrier or subcarrier block. Sudo discloses a multi-carrier transmitting apparatus and multi-carrier

Art Unit: 2617

transmitting method (title) wherein a coding section divides transmit data into transmit data for which good quality is required, such as control information and retransmission information, and transmit data for which normal quality is sufficient into respective frequency ranges of the subcarriers (paragraphs 47, 48). The classification of whether or not the subcarrier is “good” is based on a threshold (paragraphs 74, 75). Sudo thus teaches the concept of allocating data to different portions of a subcarrier based on whether a threshold is satisfied or not. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Hadad and Cudak to consider whether the portions of the subcarrier satisfy a data amount threshold, as taught by Sudo, in allocating the first and second data in order to improve error rate characteristics and transmission efficiency for more critical data that requires a good reception quality.

Regarding claim 19, in the combination of all three inventions, Cudak teaches a movement speed estimation section that estimates a movement speed of a communicating party from a received signal (paragraph 28; mobile speed indicator) and Sudo teaches the concept of allocating data to different portions of a subcarrier based on whether a threshold is satisfied or not as applied to claim 18.

Regarding claim 20, in the combination of all three inventions, Cudak teaches a delay spread measuring section that measures a delay spread of a propagation path from a received signal (paragraph 42; multi-path delay spread detector), and Sudo teaches the concept of allocating data to different portions of a subcarrier based on whether a threshold is satisfied or not as applied to claim 18.

Art Unit: 2617

Regarding claim 27, the limitations are rejected as applied to claim 18.

Regarding claim 28, the limitations are rejected as applied to claim 19.

Allowable Subject Matter

6. Claim 21 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NAM HUYNH whose telephone number is (571)272-5970. The examiner can normally be reached on 8 a.m.-5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on 571-272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2617

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/George Eng/
Supervisory Patent Examiner, Art Unit 2617

/Nam Huynh/
Examiner, Art Unit 2617